REMARKS

Claims 16-17 and 21-34 are pending in this application. Claims 16 and 27 are independent claims. Claims 17 and 27 are amended to correct minor informalities and not in response to a substantive rejection of the claims. Claims 1-15 and 18-20 have previously been canceled. New claims 35-37 are added. No new matter is added. Reconsideration and allowance of the present application are respectfully requested.

Claim Objections

Claims 17 and 27 are objected to because of informalities. As claims 17 and 27 are amended as suggested in the Office Action, Applicants respectfully requested that the objections to claims 17 and 27 be withdrawn.

Rejections under 35 U.S.C. §112

Claims 27-34 stand rejected under 35 USC § 112, second paragraph, as being indefinite. This rejection is respectfully traversed.

Specifically, it is alleged that the recitation of claim 27 at lines 1 and 2 which recites "whereby a cast three-dimensional grid coating of the passages" is unclear because the relationship between the cast three-dimensional grid and cast coating is not supported or defined.

Applicants respectfully refer the Examiner to, for example, paragraph [0033] and Fig. 1b of the subject specification. The three-dimensional grid coating described in claim 27 relates to the coating 22 discussed at least at paragraph 33. The coating 22 may create additional contact locations 18 with the outer sides of the casting cavity 1 or another casting core 2. Thus, there is ample support in the specification for the subject matter recited in claim 27.

Therefore, Applicants respectfully request that the rejections of claims 27-34 under 35 U.S.C. §112 be withdrawn.

Rejections under 35 U.S.C. §102 - *Frasier*

Claims 16-17 and 21-34 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,810,552 ("Frasier"). This rejection is respectfully traversed.

When examining product-by-process claims "the structure implied by the process steps should be considered when assessing the patentability of product-by-process claims on the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product." *In re Garnero*, 412 Fed. 2d 276, 279, 162 USPQ 221, 223 (CCPA 1979); MPEP §2113.

As pointed out in *In re Garnero*, distinctive structural characteristics impart patentable structural features to product-by-process claims. In claims 16, 17 and 21-26 of this application, such unique structural features are imparted by introducing casting cores into a casting cavity and producing passages from the casting cores, which pass through the workpiece, wherein the casting cores are introduced into the casting cavity in such a manner that they rest loosely against one another.

Such unique structure features could not possibly be created by the process of Frazier where a molten alloy is delivered from a melting crucible 110, or a reservoir 16, and poured into a mold 100. As Frazier fails to use casting cores that rest loosely against one another in the creation of its passages, Frazier could not possibly impart the unique structural characteristics created by the process recited in the rejected claims.

Moreover, claims 27-34 relate to a cast workpiece, or product. In the cast workpiece, a wall including passages in the form of a three-dimensional grid, whereby a cast three-dimensional grid coating of the passages is one piece with a remainder of the workpiece is claimed. As discussed above, a coating disposed on the casting cores may create additional contact locations with the outer sides of the casting cavity or another casting core which provide a casted three-dimensional coating of the passages that is one piece with remainder of the workpiece. In other words, the three-dimensional grid within the passages interconnects with the remainder of the workpiece and such features are not disclosed in Frazier.

Rather, Frazier merely pours a molten alloy into a mold without the use of casting cores that rest loosely against one another and, therefore, it is impossible for Frazier to create a wall in the form of a three-dimensional grid that is one piece with the remainder of the workpiece. For example, as shown in Fig. 6 of Frazier, the thin ceramic core merely includes hollow passages without a three-dimensional grid therein, in contrast to the three-dimensional grid as shown in the exemplary embodiment illustrated in Fig. 3 of the present application. Accordingly, Frazier also fails to disclose the features recited in claims 27-34.

Therefore, Applicants respectfully request that this rejection of claims 16-17 and 21-34 under 35 U.S.C. §102 be withdrawn.

New Claims

Frazier also fails to disclose each and every feature recited in new claims 35-37. For example, Frazier fails to disclose a workpiece produced by a process, comprising introducing casting cores into a casting cavity; drawing a casting material into the casting cavity to ensure that all surfaces of the casting cores and all regions of the casting mold are filled with the casting

material; and producing passages, having non-uniform lengths and branches, from the casting cores, which pass through the workpiece, wherein the casting cores are introduced into the casting cavity in such a manner that they rest loosely against one another.

Rather, in Frazier, the passages 12 formed by the mold 11 are uniform. In fact, Frazier merely describes passages as being very thin and of about 0.005 to about 0.015 inches wide. There is no description in Frazier of a wall including passages in the form of a three-dimensional grid or a cast three-dimensional grid coating of the passages that is one piece with the remainder of the workpiece. Rather, as shown in Fig. 5 of Frazier, there is merely disclosed a regular arrangement of casting cores.

Further, Frazier fails to disclose a workpiece produced by the process, comprising introducing casting cores into a casting cavity; and producing passages from the casting cores, which pass through the workpiece, wherein the casting cores are introduced into the casting cavity in such a manner that they rest loosely against one another and all of the casting cores have substantially the same size.

As Frazier uses the thin core 32 and rods 46, 48 and 50 and pours molten metal into a mold, Frazier fails to disclose casting cores that rest loosely against each other or that have substantially the same size.

Finally, Frazier fails to disclose a workpiece produced by the process, comprising introducing casting cores into a casting cavity; and producing passages from the casting cores, which pass through the workpiece, wherein the casting cores are introduced into the casting cavity in such a manner that they rest loosely against one another and wherein the casting cores are randomly distributed inside the casting cavity.

Rather, as Frazier uses the thin core 32 and rods 46, 48 and 50, Frazier also fails to disclose the casting cores that rest loosely against one another or are randomly distributed inside the casting cavity.

Although the Examiner fails to identify the casting cores, it appears from Fig. 5 and the accompanying description thereof that at least the thin core 32 and possibly the rods 46, 48 and 50 maybe considered by the Examiner to correspond to the claimed casting cores. However, as the thin core 32 and the rods 46, 48 and 50 do not rest loosely against one another, they would not produce the passages in the workpiece as recited in the rejected claims.

CONCLUSION

In view of the above remarks and amendments, Applicants respectfully submit that each of the rejections has been addressed and overcome, placing the present application in condition for allowance. A notice to that effect is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Fitzpatrick at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,
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By _____
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